

Please add the following new claims:

--29. (New) A backplane system, comprising:

a substrate;

a non-radiative dielectric waveguide connected to the substrate, the waveguide having a gap therein for preventing propagation of a lower order mode into a higher order mode;

at least one transmitter connected to the waveguide for sending an electrical signal along the waveguide; and

at least one receiver connected to the waveguide for accepting the electrical signal.

30. (New) A backplane system, comprising:

a substrate;

a waveguide connected to the substrate, the waveguide including:

a first conductive channel disposed along a waveguide axis;

B2 a second conductive channel disposed generally parallel to and spaced from the first channel to thereby define a gap between the first and second channels along the waveguide axis, the gap has a width that allows propagation along the waveguide axis of electromagnetic waves in a TE $n,0$ mode, wherein n is an odd number, but suppresses electromagnetic waves in a TE $m,0$ mode, wherein m is an even number;

wherein one of the first conductive channel and the second conductive channel has a generally I-shaped cross section along the waveguide axis.

31. (New) A backplane system, comprising:

a substrate;

a waveguide connected to the substrate, the waveguide including:

a first conductive channel disposed along a waveguide axis;

a second conductive channel disposed generally parallel to and spaced from the first channel to thereby define a first gap between the first and second channels along the waveguide axis;

a third conductive channel disposed generally parallel to and spaced apart from the first channel to thereby define a second gap between the first and third channels